TE|IT|V (R) 17|5|13

CGVRS:

1st Half-13-Mina - (c)-90

Con. 6971-13. **GS-8925**

(3 Hours) **[Total Marks : 100**

N. B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions from remaining Question Nos. **2** to **7**.
(3) Draw neat **diagrams** wherever **necessary**.

1. (a) Explain homogeneous coordinate system. **5**
(b) Explain in brief Workstation based architecture. **5**
(c) Describe geometric modeling in case of V. R. **5**
(d) Compare bitmap and vector-based graphics. **5**

2. (a) State the matrices of 2 D object for scaling and rotation, also draw the diagrams. **10**
(b) Describe the Sutherland-Hodgeman algorithm for polygon clipping. **10**

3. (a) Describe the following terms (any **two**) :— **10**
(i) Thresholding
(ii) Dithering
(iii) Antialiasing.
(b) Define Virtual Reality. Explain the components of VR. **10**

4. (a) Describe collision detection in VR. **10**
(b) Describe input and output devices for VR. **10**

5. (a) Explain B-spline curves. **10**
(b) Describe scanline algorithm for polygon filling. **10**

6. (a) Describe Motion Control method. **10**
(b) Write DDA line drawing algorithm. Compare DDA with Bresenham's line drawing algorithm. **10**

7. Write short notes on :— **20**
(a) Parallel projection
(b) Graphics rendering pipelines
(c) VR applicatons
(d) Comparison between RGB and CMY colour model.

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